Sherwood, Washington, Disposal Site

Long-Term Surveillance and Maintenance Program

U.S. Department of Energy
Grand Junction Office

FACT SHEET

The Grand Junction Office has provided cost-effective and efficient stewardship for more than 10 years

Overview

Uranium ore was mined and milled at the Sherwood, Washington, site from 1978 to 1984. This site was owned and operated by Western Nuclear, Inc., the site licensee. These operations created process-related waste and tailings, a sandlike waste product containing radioactive materials and other contaminants. Western Nuclear, Inc., completed encapsulating the tailings in an engineered disposal cell and reclaiming the site in 1996.

The U.S. Nuclear Regulatory Commission (NRC) included the Sherwood Disposal Site under general license in March 2001. The U.S. Department of Energy (DOE) is responsible for long-term custody, monitoring, and maintenance of the site.

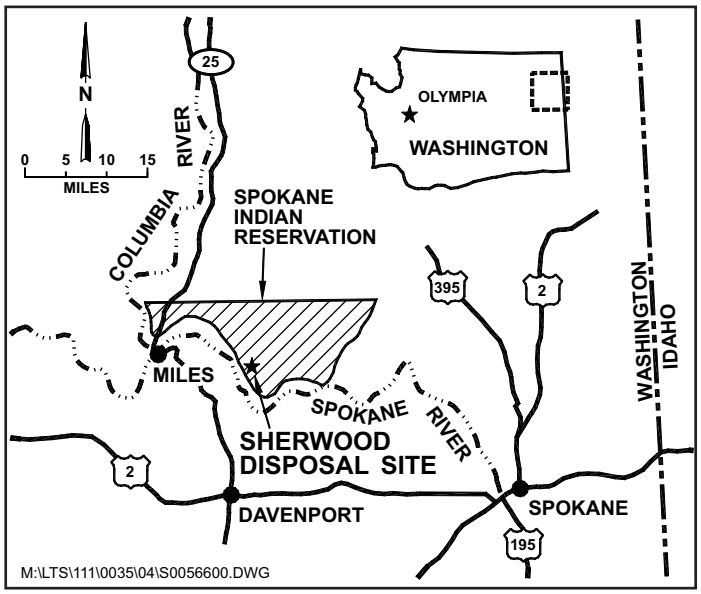
In 1988, DOE established the Long-Term Surveillance and Maintenance (LTSM) Program to provide stewardship of sites that contain low-level radioactive material after completion of environmental restoration activities. The LTSM Program ensures that disposal cells such as this continue to prevent release of contaminated materials to the environment. These materials will remain potentially hazardous for thousands of years. As long as the cells function as designed, the risks to human health and the environment are negligible.

The LTSM Program at the DOE Grand Junction (Colorado) Office is responsible for the long-term safety and integrity of the disposal site through periodic monitoring, inspections, and maintenance; serves as a point of contact for stakeholders; and maintains an information repository at the Grand Junction Office for sites in the LTSM Program.

Regulatory Setting

Congress passed the Uranium Mill Tailings Radiation Control Act (UMTRCA) in 1978 (Public Law 95–604). The Sherwood site falls under the jurisdiction of Title II of UMTRCA, which applies to uranium millsites that were under active NRC licenses when UMTRCA was passed.

Western Nuclear, Inc., conducted reclamation in accordance with cleanup standards promulgated by NRC in Title 10, *Code of Federal Regulations* (CFR), Part 40, Appendix A. These standards conform to



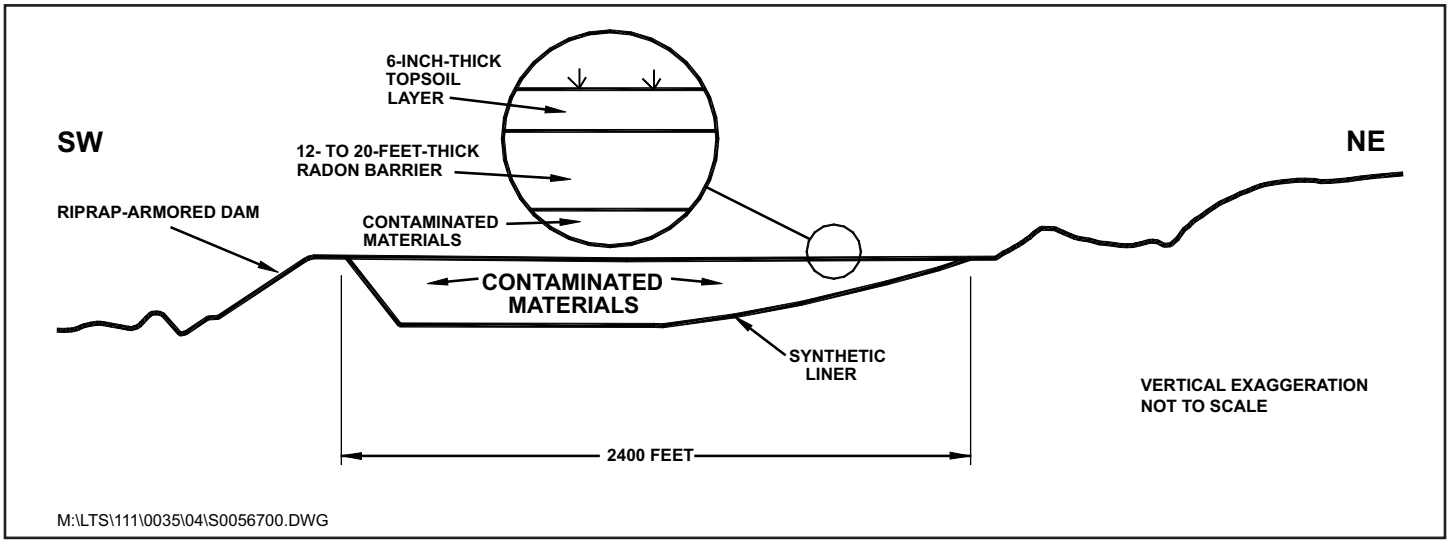
U.S. Environmental Protection Agency standards specified in 40 CFR 192.

Under UMTRCA, the active license is terminated and the site comes under a general license for long-term care when the active site licensee has met reclamation requirements. The general license, specified at 10 CFR 40.28, is issued to either a host state or DOE. Because the Sherwood site is situated on federal property held in trust for the Spokane Tribe of Indians, DOE became the licensee and assumed custodial responsibility for the site.

Sherwood Disposal Site

The Sherwood Disposal Site is on the Spokane Indian Reservation in Stevens County, Washington. The site is approximately 35 miles northwest of Spokane. Predominant land use in the area is for grazing, logging, and wildlife habitat; the region is sparsely populated.

The Sherwood acid-leach uranium mill was constructed by Western Nuclear, Inc., to process ore from a mine located 0.5 mile away. Operations began in 1978 and ceased in 1984 when uranium demand decreased. Mill decommissioning activities began in 1992, and reclamation activities were completed by 1996. Approximately 2,900,000 tons of contaminated material with a total activity of 470 curies of radium-226 are encapsulated at the Sherwood site.



Southwest-Northeast Cross Section of Sherwood Disposal Cell

Bedrock at the site consists of quartz monzonite overlain by as much as 200 feet of soil and alluvium. The upper portion of the bedrock is weathered and porous and, along with the lower alluvium, constitutes the uppermost aquifer. Groundwater has not been degraded by site activities.

Cell Design

The cell occupies 94 acres of the 382.4-acre site. When revegetated areas have matured, livestock grazing may occur on the cell; therefore, it is not fenced. Warning signs, boundary monuments, and a granite monument mark the site.

During mill operations, tailings were placed in a lined impoundment behind a dam on the site. Tailings were neutralized with lime before disposal. Contaminated building debris and soil from the millsite restoration were added to the tailings, and the slope on the dam face was reduced and armored with rock for erosion protection.

Contaminated materials were covered with a radon/water infiltration barrier. The barrier consists of uncompacted clayey-sandy soil and varies in thickness from 12 to 20 feet. Native plant species, including Ponderosa pine, were established on the soil cover. All surrounding disturbed areas were regraded and reseeded with native species.

The cell top slopes gently toward the center, and a wetland has established in the low point of the cover. The encapsulated waste remains saturated by design to prevent metals from changing geochemically to forms that might leach into the underlying bedrock.

Because precipitation in this region averages only 17 inches per year, evaporation and the vegetation growing on the cover should remove most of the water before it infiltrates the cell. The bottom liner will also contain water in the cell. A rock-armored ditch was constructed up slope and along the sides of the cell to divert run-on water away from the cell.

LTSM Activities at the Sherwood Site

The LTSM Program conducts annual inspections of this site, including an inspection of the dam. Inspections are conducted according to a long-term surveillance plan prepared specifically for the Sherwood site. Inspectors evaluate the condition of surface features and determine if any actions are required to maintain site integrity and security. These inspections will continue indefinitely. Groundwater sampling and analysis are conducted in accordance with schedules defined in the site long-term surveillance plan.

Contacts

For more information about the LTSM Program or about the Sherwood Disposal Site, contact

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http://www.gjo.doe.gov/programs/ltsm